

Traumatic Brain Injury Screening: An Introduction

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Traumatic Brain Injury Screening: An Introduction

Exactly what is traumatic brain injury?

A traumatic brain injury (TBI) is caused by either a blunt or penetrating impact to the head or the dramatic force of sudden deceleration. It is associated with any of the following symptoms or signs: decreased level of consciousness, amnesia, neurologic or neuropsychologic abnormalities, skull fracture, intracranial lesions, or death.¹

The Centers for Disease Control and Prevention (CDC), National Center for Injury Prevention and Control estimates that *at least* 5.3 million children and adults in the United States have experienced a TBI significant enough to create long-term or lifelong need for help in performing daily activities.² Of the 1.4 million who sustain a TBI each year in the United States, 50,000 die; 235,000 are hospitalized with TBI and survive; and 1.1 million people are treated and released from hospital emergency departments.³

TBI screening—why is it important?

Given its high prevalence, identification of TBI is critical in delivering appropriate services and supports to those who need them. Screening is an effective method for identification of potential positives, which are those factors consistent with a probable history and/or etiology of TBI. But it is only a small, though helpful, first step in improving the lives of the literally millions of individuals who knowingly or unknowingly have TBI.

Each agency, provider, and organizational screener will use a positive screen differently depending upon his or her particular role within the State systems. However, no matter where each operates in the systems, the screener's major, ongoing effort is (and should be) concentrated on what's done as a result of the screen, i.e., how best to connect individuals with services and supports they need to go about their daily lives and for which they are eligible. For some, a positive screen will help establish a probable basis for neuropsychological testing which may ultimately lead to an official, medical diagnosis.

Screening instruments are extremely important because traumatic brain injuries are often overlooked or misdiagnosed frequently from a lack of awareness of brain injuries and the resulting consequences. Often, an individual with TBI seeking services from a State agency or community organization does not present with a TBI, but with a co-occurring disorder (such as a mental and/or behavioral health issue or substance use), an unknown

¹ Thurman D, Sniezek J, Johnson D, Greenspan A, Smith S *Guidelines for Surveillance of Central Nervous System Injury*. Atlanta: Centers for Disease Control and Prevention, 1994.

² Thurman D, Alverson C, Dunn K, Guerrero J, Sniezek J. Traumatic brain injury in the United States: a public health perspective. *Journal of Head Trauma Rehabilitation* 1999; 14(6):602-15.

³ Langlois JA, Rutland-Brown W, Thomas KE *Traumatic brain injury in the United States: emergency department visits, hospitalizations, and deaths*. Atlanta (GA): Centers for Disease Control and Prevention, National Center for Injury Prevention and Control; 2004.

cause, or an important need (such as assistance with school, employment, or housing).⁴ Often the screening questions trigger an individual's or family member's memory of an incident (e.g., care crash, fall, or physical abuse) which could have caused a TBI, but was not recognized at the time of injury.

Screening for TBI among people accessing State and community services and supports helps enormously in defining the size of this population. It also aids in data collection. Whatever the use, screening is an important first step in coordinating appropriate resources and services for people who need them. While implementing TBI screening may require adjusting your State agency's or community organization's way of doing things, the benefits of this effort far outweigh the costs. A number of screening instruments may be used and/or adapted for a variety of settings. See pages 5 and 6 of this document for a *Table of Brain Injury Screening Instruments* that briefly describes a number of screening instruments that could be added to or adapted for existing applications or eligibility processes.

What kinds of screening instruments are used for TBI?

Screening instruments range from basic tools, which are extremely brief and general, to more lengthy and comprehensive tools. Either type may be targeted or focused to the type of services or supports being applied for or accessed. The type of personnel who may be conducting the screening ranges from entry-level intake workers to primary care practitioners, as well as individuals, family members, and caregivers.

Basic screening instruments are designed to be very concise in order to facilitate quick use. They can be adapted for different populations and/or support systems. See the table for the basic screening instruments used in Maryland, Michigan, and New Hampshire.

Targeted or focused screening instruments are developed by and used within single service delivery systems that readily encounter individuals with TBI. These include education, developmental disabilities, social services, mental health, substance abuse, and military. See the table for the targeted screening instruments used in Alabama, Alaska, Colorado and the Defense and Veterans Brain Injury Center.

Much longer, comprehensive screening instruments can have many different uses within multiple systems. Although they may contain general information, they are more thorough and far reaching than basic screening instruments. For example, a comprehensive screening instrument that includes information on TBI resources, pre-enrollment, and follow-up services may also be used by information and referral systems. Other comprehensive tools include clinical and functional assessments as well as waiver level-of-care determination instruments, but are outside the scope of this document.

⁴ For information on screening as a means to reduce "social failure" by those with "hidden" TBI see: Mt. Sinai Medical Center, New York TBI Model System. *TBI Research Review: Policy & Practice: Unidentified Traumatic Brain Injury*. 2006: No. 2. (available at: http://www.mssm.edu/tbicentral/resources/publications/tbi_research_review.shtml)

Regardless of type, most TBI screening instruments contain a few key questions that may indicate a probable TBI. For example:

1. Have you ever had an injury to your head or face?
2. Have you ever lost consciousness?
3. Has there been a change in your behavior?
4. Are you having difficulty concentrating, organizing your thoughts, or remembering?

What are the costs of implementing a TBI screening process?

Before adapting or creating a screening instrument, consider these over-riding costs:

- research and consultation;
- TBI education and interviewer training;
- question integration and translation;
- data processes; and
- referral and network building.

State agencies in both Maryland and Michigan have successfully adapted and utilized existing screening instruments.

In Michigan, the TBI Project Director wanted a screening instrument that would help social service and mental health intake workers identify individuals with potential traumatic brain injury. After considerable research, they opted to adapt the *HELPS TBI* screening instrument, originally developed by staff at the International Center for the Disabled. They felt it would be most useful to front-line staff, limited by time constraints. A nationally recognized expert in TBI—Wayne A. Gordon, PhD, of the Research and Training Center on Community Integration of Individuals with Traumatic Brain Injury—was consulted regarding modifications. Michigan’s resulting, modified version of the *HELPS* instrument includes instructions for use specific to local resources.⁵ Based on the responses they receive, agency screeners can offer information and resources useful to individuals and families in their specific areas.

Maryland adopted a TBI screening instrument developed by John Corrigan, PhD, and his colleagues at the Ohio Valley Center for Brain Injury Prevention and Rehabilitation. The Maryland TBI Project Director researched several screening instruments before deciding on Dr. Corrigan’s. Dr. Corrigan consulted with Maryland on the adaptation and Sonia Quintero, formerly of the Brain Injury Association of America, translated the resulting *Brief TBI Screening* into Spanish. The six-item *Brief TBI Screening* has been used in Maryland’s outreach and training activities in partnership with a public health center that provides a variety of medical and mental health services to low-income clients. It was also incorporated into Maryland’s *TBI 101* presentation and provided to over 20 mental health and human services agencies in a two-county area.

⁵ Michigan’s modified *HELPS* instrument is included in module 3 of its online training site: *Traumatic Brain Injury & Public Services in Michigan* which is available at <http://www.mitbitraining.org>.

Maryland offers the following success story from a large provider of public mental health services regarding the great benefit of their *Brief TBI Screening* and *TBI 101* training. This provider is also using Maryland's screening instrument as a template to incorporate TBI screening into his own enrollment assessment forms:

Thank you so much. I can tell you so much was learned through the trainings, and as an organization, we are able to look at the bigger picture with people. In our rehabilitation planning meetings, I hear staff from all departments questioning and talking about TBI histories. This in turn is helping us ask the right questions of providers and ultimately get people the help they need.

One psychiatrist is really taking a look at someone who has been very verbally and physically aggressive, and questioning how significant the past TBIs are. This person, who is diagnosed as bipolar with psychotic features, has been non-responsive to typical anti-psychotic medications. Now this person is being referred for a neuropsychological evaluation.

We were so close to having to ask this person to leave, but instead we have been able to find ways to support this individual when we have been unable to come into the home because of the increased aggression. We made use of the partial-hospitalization program, and set up times for her to meet staff in the afternoon in the club when others members have gone home. We have also gained some trust with her, and she is looking into advance directives, because she knows she does not want to go to the hospital by force anymore. She wants help before it gets that bad.

So, I thank you again for everything, and please know what a difference you have made.

What are some tips for screening individuals with TBI?

There are important considerations when working with individuals with TBI.

- Interviewing individuals with TBI can be somewhat difficult due to cognitive challenges that can affect insight, memory, and ability to concentrate. Some individuals may be unable to accurately report information or details surrounding their injury. Individuals with TBI often experience fatigue which may affect their ability to sit through a lengthy questionnaire.
- It is best to use an approach that allows the interviewer flexibility in rewording the questions and permission to probe to obtain the most helpful information. Prompts in the form of examples may be useful. For example, Maryland created a *TBI Screening Tip Sheet* for interviewers with follow-up questions for each screening question.

Ideally, every State agency and community service screening for TBI will learn the number of individuals and families with TBI they have in the system and will be in a better position to provide appropriate, timely services and supports to a greater percentage of the people who need them.

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Table of Brain Injury Screening Instruments

(From an electronic version of this document, place the cursor over a Web address until it changes to a “pointing hand” then click the link to open the file.)

STATE OR ORGANIZATION	TITLE	SERVICE SYSTEM	TARGET AUDIENCE	RESPONDENT	# OF QUESTIONS	INSTRUC-TIONS INCLUDED?	WEB ADDRESS
Alabama	<i>Brief Screening for Possible Brain Injury</i>	Rehabilitation Services	Domestic Violence	Adult Individual	10 with 11 follow-up questions	Yes	PDF: http://www.tbitac.nashia.org/tbics/download/AL%20--%20Brief%20Screening%20for%20Possible%20BI.pdf
Alaska	<i>Screening Tool for Dual-Diagnosis and TBI</i>	Health & Social Services	Mental Health & Substance Abuse	Adult Individual	40	Yes	DOC: http://www.tbitac.nashia.org/tbics/download/AK%20--%20Dual%20Diagnosis%20screening.doc PDF: http://www.tbitac.nashia.org/tbics/download/AK%20--%20Dual%20Diagnosis%20screening.pdf
Associated Therapists	<i>Amen Brain System Checklist</i>	Mental Health	Mental Health	Adult Individual	114	Yes, minimal	PDF: http://www.tbitac.nashia.org/tbics/download/amen_checklist.pdf
Colorado	<i>Preliminary Screening Tool for Identification of Acquired Brain Injury</i>	Education	School Aged Children	Parent or Guardian	40	Yes	PDF: http://www.tbitac.nashia.org/tbics/download/CO-Prelim_Screening_Tool_and_Guidelines.pdf
Defense & Veterans Brain Injury Center (DVBIC)	<i>Post Deployment Injury Questionnaire</i>	Military Medical Center	Soldiers & Veterans	Adult Individual	22		DOC: http://www.tbitac.nashia.org/tbics/download/Vets%20--%20Post%20Deployment%20Screening.doc PDF: http://www.tbitac.nashia.org/tbics/download/Vets%20--%20Post%20Deployment%20Screening.pdf
Defense & Veterans Brain Injury Center (DVBIC)	<i>Brain Injury Guideline Reference Card</i>	Military Medical Center	Soldiers & Veterans	Adult Individual	41	Yes	DOC: http://www.tbitac.nashia.org/tbics/download/Vets%20--%20BI%20Guideline%20Ref%20Card.doc PDF: http://www.tbitac.nashia.org/tbics/download/Vets%20--%20BI%20Guideline%20Ref%20Card.pdf
Iowa	<i>Iowa Head Injury Screening Instrument</i>	Health	Mental Health & Substance Abuse	Adult Individual	14	Yes	DOC: http://www.tbitac.nashia.org/tbics/download/IA_screeninginstrument.doc PDF: http://www.tbitac.nashia.org/tbics/download/IA_screeninginstrument.pdf
Kansas	<i>Client, Assessment, Referral, and Evaluation Form; and Training Manual Excerpt</i>	Aging	Older Adults	Adult Individual or Caregiver	11 with multiple follow-up questions		PDF: http://www.tbitac.nashia.org/tbics/download/KS_BI_Screening_Tool.pdf
Maryland	<i>Brief TBI Screening (Spanish version also available)</i>	Health & Mental Hygiene	Mental Health & Substance Abuse	Adult Individual	9		DOC: http://www.tbitac.nashia.org/tbics/download/MD%20--%20TBI%20Screening-English.doc PDF: http://www.tbitac.nashia.org/tbics/download/MD%20--%20TBI%20Screening-English.pdf

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Maryland	<i>TBI Screening Tip Sheet</i>	Health & Mental Hygiene	Mental Health & Substance Abuse	Adult Individual	7 with multiple follow-up questions		DOC: http://www.tbitac.nashia.org/tbics/download/MD%20--%20Tip%20Sheet%20for%20TBI%20Screening.doc PDF: http://www.tbitac.nashia.org/tbics/download/MD%20--%20Tip%20Sheet%20for%20TBI%20Screening.pdf
Michigan	<i>HELPS Brain Injury Screening Tool</i>	Community Health	Social Services & Mental Health	Adult Individual	7	Yes	DOC: http://www.tbitac.nashia.org/tbics/download/MI%20--%20TBI%20Screening.doc PDF: http://www.tbitac.nashia.org/tbics/download/MI_HELPS_BI_Screening_Tool_Instr.pdf
Minnesota	<i>Identification of Persons with a Traumatic Brain Injury</i>	Human Services	State Operated Services	Medical Staff	4		PDF: http://www.tbitac.nashia.org/tbics/download/MN_TBI_Screen_and_Policy.pdf
Mount Sinai School of Medicine	<i>Brain Injury Screening Questionnaire (BISQ)</i>	Multiple	Various	Adult Individual or Parent	113		WEB PAGE: http://www.mssm.edu/tbicentral/resources/technical_screening.shtml
National Association of State Head Injury Administrators (NASHIA)	<i>Traumatic Brain Injury Facts: TBI & Older Adults</i>	Aging	Older Adults	Caregiver, Service Provider, Family Member	10		PDF: http://www.tbitac.nashia.org/tbics/download/tbifactsheet--older%20adults.pdf
New Hampshire	<i>Screening for Traumatic Brain Injury</i>	Developmental Services	Mental Health	Adult Individual	9		PDF: http://www.tbitac.nashia.org/tbics/download/NH-Screening_Tool.pdf
New Mexico	<i>Brain Injury Screening Form</i>	Community Services	Substance Abuse	Adult Individual	6 with 13 follow-up questions		DOC: http://www.tbitac.nashia.org/tbics/download/NM%20--%20BI%20Screening%20+CD.doc PDF: http://www.tbitac.nashia.org/tbics/download/NM%20--%20BI%20Screening%20CD.pdf
Ohio	<i>Columbus Public Schools Brain Injury Screen</i>	Education	School Aged Children	Parent or Guardian	22		DOC: http://www.tbitac.nashia.org/tbics/download/columbuspubschoolscreen.doc PDF: http://www.tbitac.nashia.org/tbics/download/columbuspubschoolscreen.pdf
Ohio Valley Center for Brain Injury Prevention & Rehabilitation	<i>TBI Screening</i>	Prevention & Rehabilitation	Community Professionals	Adult Individual	35		PDF: http://www.tbitac.nashia.org/tbics/download/OH%20--%20TBIScreening.pdf
Texas	<i>Brain Injury Screening</i>	Health	Health Services	Adult Individual or Parent	80		PDF: http://www.tbitac.nashia.org/tbics/download/TX%20--%20BI%20Screening.pdf
Virginia	<i>Domestic Violence & TBI Tip Card</i>	Rehabilitative Services	Domestic Violence	Adult Individual	8		DOC: http://www.tbitac.nashia.org/tbics/download/vadvtipcard.doc PDF: http://www.tbitac.nashia.org/tbics/download/vadvtipcard.pdf